

IN THE CLAIMS:

Please amend claims 1-3, 5-7, 9-11, and 13-16 by substituting therefor the following
substitute claims:

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1. (Twice Amended.) An optical inspection system for inspecting at least one structure on a surface of an object, said system comprising:
- a first visual light source that illuminates the surface of the object and the structure with light at a first visual frequency;
 - a first coherent light source that illuminates the surface of the object with a narrow coherent light beam creating an illumination path, substantially simultaneously with illumination by the first visual light source, said coherent light beam being at a second visual frequency that is different from the first visual frequency of the visual light source, said first coherent light source being mounted on a movable mount such that illumination path created by the coherent light beam can be directed over an area of interest on the surface of the object;
 - a color camera mounted above the object, said camera having a first channel that captures an image of the illuminated surface of the object and the structure at the first visual frequency, and a second channel that captures a path of the coherent light beam as it strikes the surface of the object and the structure at the second visual frequency; and
 - a computer that determines two-dimensional structure information from the image at the first visual frequency, and determines height information for the structure from the image reflected of the coherent light beam at the second visual frequency.

B2 2. (Amended) The optical inspection system of claim 1 further comprising a second visual light source for illuminating the surface of the object and the structure with light at a third visual frequency.

3. (Amended) The optical inspection system of claim 2 wherein the color camera includes a third channel that captures an image of the illuminated surface of the object and the structure at the third visual frequency.

B3 5. (Amended) The optical inspection system of claim 4 wherein the color camera includes means for making a continuous series of exposures as the camera scans the surface of the object.

6. (Amended) The optical inspection system of claim 5 wherein the means in the color camera for making a continuous series of exposures includes means for varying the length of the exposures.

529 7. (Amended) The optical inspection system of claim 1 wherein the computer includes means for integrating the height information over the length of an exposure to calculate an average height.

9. (Twice Amended) A method of inspecting at least one structure on a surface of an object, said method comprising the steps of:

BY illuminating the surface of the object and the structure with a first visual light at a first visual frequency;

illuminating at substantially the same time the surface of the object with a first narrow coherent light beam at a second visual frequency that is different from the first visual frequency;

directing the coherent light beam in a path covering an area of interest on the surface of the object;

capturing an image of the illuminated surface of the object and the structure at the first visual frequency utilizing a first channel of a color camera mounted vertically above the object;

capturing at substantially the same time an image of the coherent light beam at the second visual frequency utilizing a second channel of the color scan camera as the coherent light beam strikes the surface of the object and the structure;

determining two-dimensional structure information from the image at the first visual frequency; and

determining height information for the structure from the image of the coherent light beam at the second visual frequency.

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10. (Amended) The method of inspecting at least one structure on a surface of an object of claim 9 further comprising illuminating the surface of the object and the structure with a second visual light at a third visual frequency.

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11. (Amended) The method of inspecting at least one structure on a surface of an object of claim 10 further comprising capturing an image of the illuminated surface of the object and the structure at the third visual frequency utilizing a third channel of the color scan camera.

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13. (Amended) The method of inspecting at least one structure on a surface of an object of claim 12 wherein the step of simultaneously capturing the path of the laser beam includes making a continuous series of exposures with the color camera as the camera scans the surface of the object.

14. (Amended) The method of inspecting at least one structure on a surface of an object of claim 13 wherein the step of making a continuous series of exposures includes varying the length of the exposures.

15. (Amended) The method of inspecting at least one structure on a surface of an object of claim 9 further comprising integrating the height information over the length of an exposure to calculate an average height.

16. (Twice Amended) The method of inspecting at least one structure on a surface of an object of claim 9 further comprising illuminating the surface of the object with a second coherent light source mounted on a side of the object that is displaced 90 degrees from the first coherent light source, said second coherent light source illuminating the surface in a path that is perpendicular to the path illuminated by the first coherent light source.